2.18 The Movie Mistakes

Occasionally, made-for-TV movies can show how badly out of touch with their audiences the networks can be. CBS was truly shocked by public reaction to its docudrama on President Reagan. It seems to have never occurred to CBS's higher-ups that much of the public would take offense at its portrayal of Mrs. Reagan as a shrew and the former President as a bumbling but affable storyteller. The public's reaction to the tendency to make things up for dramatic effect seems also to have stunned the Hollywood community. When the press picked up on the public outcry, Viacom quickly pulled the show from CBS and moved it to Showtime, which immediately declared it a hit and never showed it again. ABC reacted to the success of Mel Gibson's *The Passion of the Christ* (in spite of negative Hollywood and mainstream press) by rushing its alternative version of the *Passion* out for the 2004 Easter season, but the network seems genuinely surprised that *Judas* bombed. After all, the made-for-TV movie had a religious theme; why didn't it work? Recently a network announced plans for an animated series on Jesus Christ as a teenager having problems with his overbearing father. Will they ever learn?

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marketed on the air during the original network showing. NBC adopted the practice of putting delayed repeats on its cable networks about one week after initial broadcast airings, thus producing another round of advertising revenues. Widespread adoption of this multistep profit system, similar to the one used for Hollywood motion pictures, made the miniseries more popular than ever by the turn of the century. But a decade later, such event programming has become rare for broadcasting, budgets going instead to original production for cable.

Network Decision Making

Few program decisions precipitate as much controversy as the cancellation of programs. Because commercial television is first of all a business—with tens of thousands of stockholders and billions of dollars committed for advertising—the networks' overriding aim is to attract the largest possible audience in the ideal demographic range at all times, or at least to appear to be trying to do that. Networks always aim at the number-one position. Traditionally, ratings have been considered the most influential prime-time programming variable, and the networks make many controversial decisions each year based on these numbers. This often results in (1) canceling programs favored by millions of viewers, (2) countering strong shows by scheduling competing strong shows, (3) preempting popular series to insert special programs, and (4) falling back on reruns late in the season when the outdoors beckons and audience levels begin to drop off.

However, the type of program, the ranking as compared with the competition, the size of production fees, and the target demographic group may be as important as the ratings in cancellation decisions. New situation comedies, strongly desired by the networks' O&Os, and reality-based series are much more likely to be held than other kinds of series producing equivalent ratings. Also, series with low production fees are more likely to be held than more expensive programs, and finally, series that appeal to the network's concept of "proper demographics"—and some would now argue "political correctness"—may be held even when ratings are low. And occasionally, like once in a decade or so, audience outcry restores a favorite for a while, as in the case of cancelled and then revived *Jericho* on CBS or *Friday Night Lights*, which got new life on cable. Critical approval and the extraordinary promotional opportunity that public acclaim provides also figure in decisions to cancel or hold low-rated new programs (see 2.19 and 2.20).

2.19 The Critics

Acclaim usually has some effect only in the absence of other rating successes. The kudos for *Hill Street Blues,* for example, bolstered NBC's image at a time when it was sorely in need of prestige, persuading programmers to stick with the show even in the face of low ratings. The same connection between critical acclaim and patience even in the face of low ratings can be seen for the moderately rated *The West Wing* on NBC or *Bones* on FOX. Sometimes the networks decide to go along with the critics, at least until something with better numbers comes along.

On the other hand, critical shock also seems to be desirable as far as the networks are concerned. The WB openly admitted that it added a love affair between a high school student and a teacher to *Dawson's Creek* to generate negative press. ABC did the same thing with *NYPD Blue*. The nude scenes were there to stir up controversy. After the press furor generated by the Madonna/Britney Spears kiss, CBS was probably trying to trigger similar press attention with its 2004 halftime show at the Super Bowl. It just didn't count on how negative the public reaction would be. Many argue that the atomic bomb detonations on *24* and *Jericho,* the grittier aspects of *Prison Break* and the graphic details in *CSI* and *Bones* have also been designed to generate such shock. Instead of being bowled over, however, the critics have raved about the new realism.

The Risks and Rewards Ahead

Supposedly, the major networks prowl for the breakthrough idea—the program that will be different but not so different as to turn away audiences. *The Cosby Show* was one such show in 1984–85, as was *ALF* in 1986. *Married ... with Children* astonished viewers in 1987, *Roseanne* made a splash in 1988, *Friends* reintroduced the buddy sitcom in 1995, and *Malcolm in the Middle* suggested an entirely new idea for the family sitcom in 1999.

The biggest change was the rebirth of the prime-time game show with *Who Wants to Be a Millionaire?* in 2000—after an absence of nearly 40 years—and its combination with reality in the form of *Survivor*. Next came graphic special effects and mystery that produced the success of *CSI* beginning in 2002, and then the blatant sex in *Desperate Housewives*. Its success relaxed standards all through the broadcast networks. Then CBS came up with *The Mentalist*, which spawned a half-dozen medium and psychic shows. Most recently, FOX reinvented the musical with *Glee*, though few have attempted to copy it.

In recent years, all four major networks have had entire seasons without a single new hit. In truth, network programmers can only guess what the next hit will be and why it succeeds. A program failure is easier to analyze. It can result from the wrong time period, the wrong concept, the wrong writing, the wrong casting, poor execution of a good idea, poor execution of a bad idea, overwhelming competition, the wrong night of the week, and a dozen other factors. Conversely, success is very hard to analyze or copy, even though that has become the driving goal of the broadcast networks.

Although the actual cost of production has gone down dramatically through the use of digital technology and computer-produced effects, other factors have canceled out the savings and caused the full cost of production to continue to skyrocket. Some of those factors are directly related to programming decisions and seem to be the opposite of what many would naturally assume would happen. For example, the inability of programmers to produce successful shows has actually caused the price of production to go up. With so few true hits, programmers seem willing to pay almost anything to keep a successful program, as demonstrated by the incredible amounts paid to renew such series as *ER* and *Two and a Half Men*.

The networks are also locked in bidding wars for top specials and sporting events, again causing the prices to go through the ceiling. In a strange type of domino effect, however, as the top price levels have gone up, directors, writers, actors and people in all other branches of production have also demanded

2.20 The Censors

The broadcast *Standards and Practices Department*, a behind-the-scenes group, theoretically used to exercise total authority over all network programming. Cynically and often angrily called "censors," the department once acted as policeman and judge for all questions concerning acceptability of material for broadcast. It often found itself walking a thin line between offending viewers or advertisers and offending the creative community. It had to decide between the imaginative and the objectionable.

Members of the department typically read submitted scripts; attended rehearsals, filmings, or tapings; and often previewed the final products before they aired. They were everywhere. If, in the department's lordly judgment, a program failed to conform to network standards in matters of language or taste, it could insist on changes. Only a decree by the chairman or president of the company could overturn its decisions.

However, Standards and Practices was one of the first areas cut back when budgets grew tight in the 1990s, and as a result, this department has little day-to-day impact today (although its existence is loudly touted during election years when an increase in media criticism usually occurs). Moreover, even when it had considerable power, over the years the department's criteria for acceptability were forced to change. In the early 1920s, one of the hottest issues was whether such a personal and perhaps obscene product as toothpaste should be allowed to advertise over the radio airwaves. By 1983 the hottest question was whether NBC's censors would permit a new series, *Bay City Blues,* to air a locker-room scene that included nude men photographed, as the producer put it, "tastefully from the back." By the mid-1980s, child abuse, abortion, and homosexuality were the problematic topics, while the 1990s brought the thorny questions of AIDS, condoms, obscene language, and, as always, how explicitly sex could be shown.

By the mid-2000s, concern focused on violence, nudity, drinking, and smoking, and one of the hottest issues was whether some reality shows were rigged. This question surfaced with the discovery that certain exciting scenes in *Survivor* were staged and that ABC network executives had overruled the judges in their *American Idol* clone, *Last Comic Standing*—a show in which the audience supposedly selected the next top comedian—apparently to produce a more demographically-friendly result. At the same time, gay groups and other liberal organizations were demanding more positive portrayals of gays in programming, and some producers wanted even more graphic and controversial depictions of sex in prime time.

The present situation has led to some very strange reactions, especially noticeable on cable. The Syfy Channel, for example, owned by NBC Universal, bleeps out bad words on some shows but ran *Tripping the Rift* for years, which is little more than animated porn. Now the network censors seem focused on political correctness and on gaining points with minorities, not on offending special interest groups like gays. As long as programs don't cross the lines set by the FCC, pretty much anything goes.

more. As a result, costs at all levels have gone up even as ratings have gone down. The network takeover of production not only didn't slow this process, however; it actually increased the rate of its rise.

At the same time, the incredible failure rates have resulted in an insatiable demand for replacement series. It is not at all uncommon for half of new prime-time series to fail by network standards within their first six weeks. These shows have to be replaced, and because development is the most expensive phase of production, the constant demand for new series has sent development costs out of sight. As these new programs rarely do better than the preceding series in those time slots on the same channels, one would presume, just considering the economics, that programmers would leave most new series alone for at least a year to see if they could build audiences. The continual hope for that one elusive program that will break the trend, however, produces a type of feeding frenzy in which no programmers are willing to deviate from the present destructive cycle.

Predicting the future of any medium is a risky undertaking at best. As ratings and compensation continue to fall, eventually the largest non-network group owners may decide they can do better on their own. It would be natural for such group owners to either increase their participation in original syndication production for their own systems or join with disgruntled old executive producers as to form new production houses, thus in essence becoming networks

themselves. For ten of its owned stations, FOX created MyNetworkTV to replace the prime-time shows that UPN formerly supplied.

Such scenarios suggest that the future American broadcasting system could more closely resemble the system that presently exists in such countries as Japan, rather than what is now familiar. In short, there would be more networks but fewer affiliates (and maybe way fewer stations, as Chapter 4 suggests). That is to say, the networks would be doing their own productions, which would then be distributed through whatever stations they own as part of a much larger entertainment wing of a corporation.

Companies like Hallmark have been doing production for years (nowadays Hallmark has its own cable network). Is it possible that they could join with other large companies to make their own shows? Many, like Sears and Procter and Gamble, seem to be threatening that now, arguing that they couldn't possibly do worse than the present broadcast system. Only time will tell how the present situation will work itself out. Only six things seem to be sure bets right now:

1. Television is not going to go away: Might change a bit, but it'll live.
2. The power of the big broadcast networks to control information and entertainment will continue to decline, forcing the networks to change into new entities.
3. The division between broadcasting and cable will continue to blur as the companies buy into one another and begin to mirror each other and make greater use of the internet.
4. Aftermarket selling of reality and other shows will become the centers of creative effort.
5. Virtual advertising and product placement will expand into regular programming as revenues from traditional advertising decline.
6. Multiplatform strategies will become part of every program proposal and central to all productions.

Indeed, the mixed broadcast/cable/online model now used by ION and Univision is the likely future of the business. In any case, one thing is clear: The next 50 years will bear little resemblance to the last 50 years.

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CHAPTER

3

Multichannel Television Strategies

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Chapter Outline

Multichannel Video Programming Distributors

The Big Gamers
- Cable Systems
- Satellite Systems
- Telephone Systems

Selection Strategies
- Technical Considerations
- Legal Considerations
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Scheduling Strategies

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- Audience Size
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Promotion Strategies

Local Origination on Cable
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What's Sneaking Up

Notes

Do you get a lot of tweets and postcards from the company that supplies your television service? Or from the companies that don't? How many ads try to persuade you to add a zillion channels and upgrade to HD? Change to DirecTV? Switch to U-verse? Upgrade to Xfinity? Or add FiOS to your cell service? Competition among the wired and video service companies is fierce. The battle for subscribers and revenue has now moved to the mobile media, and soon will expand to potential adopters of 3D.

Multichannel Video Programming Distributors

New communications technologies and looser federal regulations created a whirlwind in the marketplace for multichannel service providers. Cable, satellite and telephone companies began blanketing homes and offices with combos of digital television, DVRs, on-demand video, voice telephony and fast (and superfast) internet connections. Cellular companies got into the game by offering 3G/4G and Wi-Fi internet connections and wireless video programming. Despite active competition, consumers' monthly bills grow steadily larger, easily to $100, $200 and, in some cases, even higher.

Cable, satellite and telephone companies are the major *broadband* carriers: They use telecommunications signals of far higher capacity than earlier in the twentieth century, thus "broader bands." Companies that provide broadband signals to deliver video programming are collectively called *Multichannel Video Programming Distributors (MVPDs)*—or sometimes "multivideo program distributors" because the full definition is too big a mouthful. (In some jokes, they are the "most valuable program distributors.") Most MVPDs offer a mix of voice, internet and video services, so calling AT&T, for example, a "telephone company" or Comcast a "cable company" describes their history rather than their current broadband business. On the other hand, DirecTV is primarily a satellite video distribution company. For all types of MVPDs, it's *video* that accounts for the largest part of the revenue stream, but the distinction between video (or television) and internet has become largely one of hardware rather than content, and that hardware is slowly merging. *By 2015, it is expected that more than 90 percent of the country's households will subscribe to some kind of multichannel programming distributor,* some for a single service, such as internet or cable connection, but many for a large expensive "trifecta" of services. Only 1 percent of those subscribers will be dial-up households, the rest broadband. At the same time, online video distribution or "over the top video" will continue to grow with an increasing number of consumers choosing to "cut the cord" to get their TV over the internet. Current MVPD penetration is about 92 percent (see 3.1), and it should grow to over 95 percent within the next ten years thanks to a significant expansion in online video distribution. Most consumers will take a mix of services.

All three distributors, cable, satellite and telephone companies, provide wide ranges and changing lineups of digital video and audio programming. Cable and telephone companies also offer high speed internet and both wired and wireless voice services as they

3.1 MVPD Subscribership 2012

	Subscribers	% /116 m. USTV HH	%/107m. MVPD HH
CABLE	70 million	60%	66%
SATELLITE	32 million	26%	30%
TELEPHONY	5 million	5%	5%
Non-MVPD	9 million	8%	8%

compete for customers, more or less. It's that "more or less" that makes the differences…and maybe the winners. As one Bell Atlantic (now Verizon) executive predicted, "The people who will win this game are the folks who provide depth and breadth in programming and knock-the-socks-off customer service."[1] Thus, *major players that offer the best service along with the most kinds of services—nearly all of which contain programming content of one kind or another—have the long haul advantage.* The broadband technologies that deliver multichannel media certainly give viewers more options and more flexibility, but at a high cost. And the huge expense of the complex technologies has forced many smaller companies to merge (or leave the game).

Irrespective of the kind of owner—cableop, satco, or telco (the short-hand terms for cable operator, satellite company, and telephone company)—the job of multichannel programmers is normally to *select, schedule, evaluate* and *promote* channels of television and audio programming out of the hundreds of content networks (described in Chapter 9) and to provide wired and wireless phone and internet services. However, the meaning of "select" is far different than in broadcasting as described in Chapter 2. Rather than select individual programs, MVPD programmers must choose whole channels for their lineups, depending as much or more on financial negotiations than type of content. Indeed, the biggest current battle is to determine how much money video distributors will pay the program producers and how various middlemen (banks, credit card companies, mobile phone carriers, software and hardware companies) will get their share of cell and video revenues. Moreover, the spread of HD followed by VOD and 3D has made the competitive marketplace even more complex and confusing for the programmer, the distributor and the consumer.

Video programming is predominantly a nationwide business. Nonetheless, a few *local* cable programmers remain that serve a city or limited region. These programmers' jobs focus on *producing* and then *scheduling* programs for one or more channels of local or regional cable or, more likely, web offerings, and they are discussed at the end of this chapter because they do matter to the communities they serve. But they aren't in the big game.

The Big Gamers

Three types of program retransmitters dominate the MVPD business: *terrestrial wired cable, direct satellite broadcasters,* and *terrestrial wired and wireless telephone phone systems*, although increasingly, the big cable companies offer both wired and wireless services. Collectively, the nine biggest MVPDs served more than 75 percent of the 116+ million U.S. television households in 2012, and since about 8 percent of households have no MVPD service, that leaves way less than 20 percent for all the smaller operators. In addition, foreign-managed companies of these types reach millions more subscribers around the world. (Is there any urbanite in the world under age 30 who doesn't have a cell phone?) Not surprisingly, the more than a thousand U.S. operators of these various distribution systems face common problems.

Cable Systems

The term *cable system* refers to geographically bounded and franchised wired companies using fiber optic and coaxial cable to deliver from dozens to hundreds of video and audio program channels to subscribers. Nearly all also offer broadband (high-speed) internet and wired telephone services, and the biggest cable systems also offer wireless (4G/3G/Wi-Fi) voice and video. Typically, local cable operators pick up signals from several orbiting satellites and terrestrial broadcast antennas and then redistribute them via cable wires to homes and other buildings. Subscribers pay from $40 to $150 or more per month for cable services; the total depends on the number of services taken by the consumer, how many *set-top boxes (STBs*) are being rented, whether they opt for digital video recorders (DVRs), and how many VOD movies were rented in a particular month. The most basic cable service—retransmission of local off-air local station signals and a few cable networks—may be available for as little as $30 or $40, but most households want (many would say "need") far more than

3.2 Top Five Cable Operators, 2012

	Cable (millions)	Internet (millions)	Phone (millions)
Comcast	22.8	17,6	9.0
Time Warner Cable	12.4	10.0	4.5
Cox	4.9	3.9	2.5
Charter	4.5	3.3	1.8
Cablevision	3.1	2.7	2.2

3.3 U.S. Satellite DBS Services, 2012

	N of sub (millions)	% of TVHHs	Video Channels
DirecTV	19.3	17	370
DISH Network	14.1	12	400

that, adding high-definition, premium, or 3D channels; DVR and STB fees; internet service; and/or both landline and cell phone service.

As the chart in 3.2 shows, Comcast (which also owns 51 percent of NBCUniversal) is the dominant force in cable television and home internet service and is third largest (after AT&T and Verizon) among providers of telephone service. Comcast, together with the other four largest multiple system operators (MSOs, the term for the companies that install the wires and manage local service in multiple franchise areas)—Time Warner Cable, Cox, Charter and Cablevision—serve about three-quarters of all cable subscribers. Comcast itself consists of hundreds of separate geographic franchises in 39 states welded into one huge operating company.

Satellite Systems

The term DBS is used only in the United States; in the rest of the world, *DTH* (direct-to-home) means all kinds of home satellite delivery services. As you probably know from frequent advertising messages, the two biggest companies providing domestic DBS service are DirecTV and DISH Network. Jointly, they have about 33 million subscribers (28 percent of multichannel households).

As 3.3 shows, by 2012 about 19 million households subscribed to DirecTV, and about 14 million subscribed to DISH, although such startups as VOOM and the Christian Sky Angel were trying hard to bite off a tiny share of the business. The two main satcos provide service packages of between 60 and 400 channels and charge between $35 and $115 per month for their packages, while the newcomers offer only a few dozen channels, albeit at far lower monthly cost to subscribers.

If long-term success in the competition among MVPD services depends on their ability to provide consumers with all communications services—a "triple play" of video channels plus broadband internet access and telephone service—satcos are out of luck. Both big satcos supply plenty of HD (but not 3D so far), and DISH offers somewhat more channels while DirecTV offers exclusive sports packages. But neither has the ability to competitively supply high-speed internet connections or any kind of phone service unless they join forces with a terrestrial phone or cable company, which eats into profits (and is sometimes hard to explain to potential consumers). The third generation of just-launched communications satellites has far larger capacity than previous satellites Nonetheless, satcos are not likely to cost effectively compete with cableops and telcos (see 3.4), making satellite companies poor contenders for high speed internet customers except in rural places with no other options. The particular advantage of satcos is that they can bring service to the millions of households outside metropolitan areas.

Telephone Systems

The term *telephony* refers to service for both standard wired phones and wireless or cell phones. By 2012, analog voice telephone service had largely given way to a digital meld of voice and data in

3.4 Getting to Today's Satellite TV

Satellite systems traditionally referred to three signal distribution methods:

(1) low-power C-band home satellite dishes (HSDs);
(2) medium-power Ku-band direct-to-home (DTH) satellite systems, such as Asia's STAR TV; and
(3) high-power Ku-band direct broadcast satellite (DBS) systems, such as DirecTV and DISH in the United States and SKY in Europe.

The oldest form of satellite program delivery, TVRO before the 1980s, required huge backyard dishes (often two or three yards in diameter) that were often banned by horrified neighborhood associations—but the business was really killed off by the scrambling of satellite signals and the FCC's requirement that home dishes be licensed (no more free out of market NFL games). Now consumers must pay for service through a cable or satellite company, and the large dishes have almost totally disappeared from urban and suburban backyards. (Only a few remain in the west and up in Alaska where signals are hard to get.)

The medium-power Ku-band DTH services lasted only a short while in America, selling off to DBS largely resulting from their smaller channel capacity and getting squeezed out of the most desirable geosynchronous satellite slots because of aggressive bidding by DirecTV and EchoStar (DISH). The modern, high-power Ku-band satellites allow subscribers to use dish antennas of one to two feet in diameter. (The Japanese broadcast video and data using an even higher frequency band, Ka, to antennas the size of American half dollars.)

Between 2011 and 2012, a new generation of satellites was launched with ten times the capacity of earlier communications satellites. WildBlue and HughesNet, among others, offer satellite internet service with download speeds of 1.5 to 2.0 Mbps and upload speeds of 256 Kbps for a cost of around $80 per month for their fastest service offering. This is 30+ times faster than dial up, but considerably slower and more expensive than the high speed internet service offered by cableops and telcos (via FiOS and U-verse). In addition, it takes a measurable amount of time for signals to go up 22,000 miles and come back down again, which leads to noticeable delays and sluggish performance for internet users who participate in internet gaming or who watch streaming video feeds. As a result, such services are primarily aimed at rural markets that are not served by cableops and telcos.

the larger markets, and mobile service (meaning tablets or cell phones). Public and in-home Wi-Fi are other services that cableops and telcos can offer, and they have become an increasingly desired component of both television and computer access.

Counting who delivers how much of what is complicated by the two kinds of telephone service—wired and wireless. AT&T, Verizon, Qwest/CenturyTel, Comcast and thousands of small local phone companies provide wire line telephones, but the hot business is cellular service—where Verizon remains dominant because AT&T's threatened purchase of T-Mobile did not suceed.

Table 3.5 shows the percentage of subscribers with the two major kinds of service in the domestic market. AT&T and Verizon are clearly the national mega-giants, with Sprint much smaller and third in line with respect to cell phone service but Qwest/CenturyTel has 10% of landline subscribers. In most urban areas, your local phone company has digital lines and is linked with a cellular company so that together they can provide any or all wire line phone, cell phone, and internet service (at least through DSL [digital subscriber line]). The largest phone companies also typically offer some type of multichannel video service. But the smaller companies lack the nationwide array of cell towers that AT&T and Verizon have; in spite of roaming contracts, calls just die in a lot of places outside the home area.

Verizon (FiOS) and AT&T (U-verse) have invested billions of dollars installing fiber and digital to upgrade a significant portion of their urban and business landline networks so they can offer broadband services capable of competing with those offered by cable companies. However, most rural areas continue to be served by twisted copper pairs that are inadequate for offering video or high-speed

3.5 Comparative Telephone Subscribership

	Landline Subs (% share)	Cell Subs (% share)
Sprint Nextel	0 (0%)	53 million (18%)
AT&T	39 million (45%)	101 million (34%)
Verizon	25 million (29%)	108 million (37%)
T-Mobile	0 (0%)	34 million (18%)
Qwest/CenturyTel	9 million (10%)	0.9 million (0.3%)

3.6 Wireless Cable

There is another small player in the MVPD game. Operating alongside cable companies are a few microwave distributors of video called *multichannel multipoint distribution service (MMDS)* operators, more commonly called (rather ironically) *wireless cable*. Wireless cable operators broadcast channels of local television and cable networks using microwave frequencies from an antenna located on a tower, tall building, or mountain. Homes, apartments, and hotels receive the signals by using a small microwave dish, typically about 16 to 20 inches in size. A set top converter, identical in function to a cable TV set top box (STB), has to be located near each TV receiver.

MMDS most successfully served portions of large cities where tall buildings are not too numerous to block the line-of-sight microwave signal, but their inability to simultaneously provide high speed internet connection and a large enough menu of video, coupled with signal security issues, killed them off except within apartment complexes where landlords want to provide a multichannel television service. The number of wireless cable subscribers has dropped below 100,000, which represents less than 0.1 percent of the multichannel video distribution marketplace.

Implementing another vision for using the MMDS spectrum in the late 1990s, MCI WorldCom and Sprint each purchased a significant number of MMDS operators (altogether, about 60 percent of the total MMDS licenses) with the intention of using this spectrum as the "last-mile" connection to homes for the provision of high-speed data and voice services. When sending video to cell phones and other wireless devices captured consumers' interest, the spectrum was re-deployed for wireless video and popularly named Wi-Fi.

Although still and moving video pictures are rapidly appearing on cell phones, pagers, and personal communication assistants (PCAs, formerly PDAs, such as BlackBerrys) using this MMDS spectrum, most of the material comes as short form video because of the small size of the screens. 4G smart phones (iPhones, Androids) with broadband capability have had a dramatic impact on mobile delivery of email, high speed internet, and data service.

internet connections. FiOS service is available to 16 million households in Verizon's wire line service area (i.e., it is available to about 60 percent of Verizon's potential wire line subscribers); U-verse is available to 27 million households in AT&T's wireline service area. FiOS and U-verse are only available to households actually passed by the upgraded networks. So cable companies continue to have the superior broadband network in most U.S. geographic areas.

FiOS is the only broadband network that takes fiber all the way to the home. Although this means that it can offer the fastest broadband internet service, it also means that it is the most expensive to build. U-verse is an IPTV (Internet Protocol TV) service that uses VDSL (very high bit rate digital subscriber line) to distribute signals via a significantly upgraded but less expensive network (compared to FiOS). FiOS and U-verse provide high quality, wire line competition for cable companies. However, they

rarely compete with each other (because there is little overlap between the markets in which Verizon and AT&T offer wire line telephone service). FiOS has almost 4 million video/cable subscribers and about 4.5 million high speed internet subscribers. U-Verse has over 3.5 million subscribers to its video/cable and high speed internet services.

Selection Strategies

A strategy is a plan to achieve a goal, such as to win by defeating competitors. For MVPDs, the ultimate goal is to make money, of course, and generally, MVPDs make money two ways: by signing up subscribers for their various services and by selling advertising. They do best if they capture more subscribers—and hang onto them—than others in the same business. Each newer technology becomes a platform for potential profit, so corporations encompass many layers of strategies. Each small part of a system has its own goals and plans that normally have to be made to mesh with what the higher-ups want.

In the case of the highest corporate media levels, an overall strategy includes such segments as lobbying for regulatory advantages, minimizing tax ramifications, supporting research and development of new technologies, planning for growth, consolidation and mergers and so on. These strategic elements reach beyond the programming concerns of this book but may affect them. The meshing of various goals and strategies becomes more complex when many broadcast and cable networks operate under a single corporate owner, as is the situation with Comcast, Disney, Time Warner, Viacom and News Corp, who must strategize to effectively program for many of the fixed and mobile media. *Who owns a content producer and what else that corporation owns (and its overall financial condition) affects what its individual parts can do and not do.*

From the perspective of a single program network, *the goal is to make money for the parent corporation by selecting programs that attract audiences that advertisers want to reach* (usually the 18–49 age group). On the other hand, if one channel is going after men 18–49, then other co-owned channels normally need to target other demographic groups—younger, older, women, or teens or kids, or people with a particular hobby or lifestyle interest (in cars, in cooking, in fashion or in specific sports). However, not all networks stick to a single audience all the time. The broadcast networks cast a very wide demographic net most of the time, but when the Olympics rolls around, all networks owned by whoever has the rights (for the last couple of decades, NBCUniversal) must share the huge mountain of programming and perhaps target somewhat different groups than their usual programs do.

And then there is Syfy Channel, owned by NBCUniversal. You'd think it would be full of science fiction movies and series, and it regularly carries *Star Gate Atlantis*, *Star Gate Universe*, or *Eureka* (mostly in summers) and disaster and monster films, but it also carries *WWE Smackdown*. And one night a week Syfy schedules people tiptoeing around old buildings with flashlights pretending that they see ghosts! The authors don't know who watches that.

The point is that selection of programs is as complex for cable networks as it is for broadcasters, but they are working across many channels instead of largely within a single channel (or one broadcast channel plus an online version, at any rate). At the same time, all program-related strategies have to take account of shifting seasons, program contracts and life spans, as well as the development and promotion of signature programs. Nonetheless, those content networks owned by an MVPD have even more considerations to weigh, some of which may narrow a network's choices to targeting audiences not served (at a particular day and time) by the rest of the media corporation. And they may narrow selection tactics to programs that work as well for smart phones and tablets as for larger screens. Because some MVPDs (satcos and telcos) do not own program content networks, and thus must concentrate on passing through programming owned by others, their selection strategies focus completely on negotiating pay for replay rights.

Some experts predict complete conversion to a totally on-demand video distribution system by mid-decade. Other experts predict a complete move to

wireless distribution of television at some point in the future. However, several roadblocks will slow any transition. These include overlapping technical, legal, economic and marketing circumstances affecting cable, satellite and telephone delivery and reception and thus programming selection strategy. Not all factors inhibit innovation and change, however; some encourage them. *Successful programmers juggle all the variables of physical and legal limits, licensing and marketing costs, along with revenue potential, to select the best options for their coverage areas, and thus the mix of services necessarily varies somewhat from town to town and from one company's footprint to another.*

Many selection considerations relate to technology and law because the former is changing so rapidly, while legal applications and interpretations are trying to catch up. We look first at seven hot topics in media technology.

Technical Considerations

Just as one aspect of new tech becomes clear, some other development seems to undermine that understanding! But here are some tried and true elements of media technology.

1. Location and Income

Technology is not the same throughout an MVPD's territories, let alone throughout the country. Distribution and reception technology in urban areas is far advanced over rural areas, where great geographic distances and low household density make both wired and terrestrial wireless signals expensive, even impractical. The huge footprints of satellite signals better serve large rural areas.

Those who can afford to subscribe to the maximum of what's available have far more advanced and faster services. The less a household spends on tech, the slower it is likely to be. A related matter is tech dependency: Part B needs Part A in order to make Part B work. Households cannot access video on demand (VOD) without paying for an operator-supplied digital set-top box (STB). (TiVo won't work for Comcast's on-demand, for instance).

Technology is not the same from company to company. VOD comes under different names and with different characteristics. Comcast calls its service "On Demand," and if you have a Comcast digital STB, programs and movies (many free and some for a fee) are instantly available via an *On Demand* channel, and you can watch the same episodes and movies as often as you like. Some other cable companies, with less advanced tech, offer only *Pay Per View* (PPV) and charge per viewing of a rotating set of movies and specials. (Decoding and billing numbers can be supplied online or by telephone.) Satcos require subscription to their DVR service to get a much more limited form of VOD (compared to cable, FiOS and U-verse). Besides being slow (remember all those miles up and down the signals have to travel), while the files gets loaded onto your DVR's hard drive, the programs are only available for a limited time and then will be erased. If you want to watch a downloaded movie again, you need to pay again.

2. Capacity

Capacity is currently less of a problem for most MVPDs. Construction of optical fiber Hybrid Fiber/Coax (HFC) systems throughout the country in the 1990s combined with digital compression of video signals (so that more channels can be transmitted through the same amount of bandwidth) enormously increased cable's broadband carrying capacity. The end of over-the-air analog television in 2011, widespread consensus on distribution standards, and continued advances with respect to digital signal compression means wire line multichannel distributors have greatly expanded their technical capacity. Telcos can only bring competitive multichannel video services to communities where they have fiber wiring fully installed (see 3.7). However, rapid expansion of 4G/3G/Wi-Fi capacity for cell phones is occurring in high-usage urban areas, making video via smart cell phones (e.g., iPhones) and tablets (e.g., iPads) a reality.

It also takes time for companies to roll out the newest distribution technologies, and not all companies operate on the same schedule. One part of a city

3.7 The Role of Fiber Optics

Another element in the conversion to digital systems is fiber optics. Cable systems and telephone companies are evolving toward all-fiber communication networks because of their *much higher capacity* (as much as 1,000 times a comparable thickness of coaxial cable), *better picture quality* (because fewer and different types of amplifiers are required), and *greater reliability* (through redundancy because systems typically use only a portion of capacity and thus have plenty left over for backup channels).

In most systems, however, fiber installation ends at nodes that serve something between a neighborhood and a block or so of homes (fiber-to-the-node—FTTN)—because installing fiber all the way to individual homes (fiber-to-the-home—FTTH) will not be cost-effective for the foreseeable future. The cable industry believes that most services, including high-speed internet connection and VOD, can be adequately provided with FTTN, and that they can continue to increase system capacity as needed by moving the nodes closer to the "neighborhood" (i.e., having each node serve a smaller number of homes).

Users of up-to-date office campuses that are equipped with fiber all the way, however, commonly notice (and complain about) a significant lessening of speed and reliability at home—compared with their all-fiber offices, dorms and classrooms—when part of the signal travels via ordinary telephone or cable lines. At present, FiOS offers the only complete fiber to the home (FTTH) service. If Verizon is able to identify a set of highly valued consumer services that require the additional speed achieved by taking fiber all the way to the home, it could gain it a significant advantage relative to its competitors. Failure to identify such a service will result in lower profitability relative to its competitors due to the higher costs associated with FTTH.

Although enough miles of optical fiber have been strung to reach to the sun (and probably back again), and fiber delivers data at the rate of one billion bits per second (a gigabit), fiber has been used primarily as a long-haul medium. Away from big cities, a shortage of high-speed, local-access connections between consumer residences and MVPD operators persists. As the quantity of high-speed internet connections increases, however, the number of special paid services via wire will dramatically increase, and the cost of these services may decline. Whether cable operators or telephone companies will ultimately dominate—or split—the delivery of high-speed internet service to U.S. homes has been a big question for the communications industry. At present, cable is winning with an almost 60 percent share of U.S. high speed internet subscribers compared to about 40 percent for telcos (see 3.1).

may have technologies available that other parts don't, causing negative consumer reaction (companies have to field lots of calls and say "sorry, not available in your area") and consequent political fallout.

The fundamental element in capacity is *operational bandwidth*, the width of the frequencies that signals can use. Years ago, plain-old-telephones used a mere 5 kHz of bandwidth, so high and low sounds were cut off. Cable began with MHz wires but today, the 1 GHz fiber platform is widely installed throughout urban areas. MVPDs view fiber and amplifier technology in terms of platforms, or levels of potential capability, and the 1-GHz platform has tremendous capacity. With appropriate design architecture, it can be utilized for mixes of digital signals (video, audio, voice, data), and the number of functions it performs (and thus services it delivers) can be gradually increased over time…all the way to virtual projects and 3D. On the other hand, as new bandwidth intensive services are developed, such as holography if and when it ever becomes practical for television, the demand for spectrum will continue to expand.

3. Digitization

For cable, the high cost of upgrading systems to all-digital transmission and providing advanced set-top boxes has led the industry to utilize a *phased rollout* strategy. Cable operators seek to retain as many of their subscribers and advertisers as possible while

moving step-by-step into digitization as the economic payback becomes visible. An overnight shift was impossible because it would have required all cable subscribers to have a digital set-top box for every television set in the home.

Although all broadcast stations supposedly ended analog transmission in 2011, most homes still have some analog TV receivers (with a digital conversion box). Additionally, the capital expenditure connected with the transition to digital was quite high, so MVPDs vie for high-end customers and look for services that will attract additional revenue. As the internet becomes a bigger part of the television system—and vice versa—subscriber choice will expand dramatically.

For satellite companies, digitization was never an issue. DirecTV and DISH Network launched their operations as fully digital systems, often touting the quality of their picture and sound in their marketing efforts to consumers. Although each of these DBS systems uses a different digital video compression system, both are able to deliver on their marketing promises. Satellite companies are, however, restricted by the number of transmission channels currently licensed to them by the FCC: 46+ for DirecTV and 107+ for DISH. Using present-day digital compression standards of 12 to 1, DirecTV can transmit more than 600 channels, and DISH can send around 1,300 to subscribers—far more than most cable systems offer. The extra bandwidth is used in a variety of ways including: distributing local TV signals back into local markets (i.e., local into local), for their slow internet and for delivering limited VOD services.

From the consumer's perspective, *digitization necessitates the eventual replacement of all existing television sets and usually devoting a higher proportion of discretionary income to subscriber fees*. HD and 3D are further add-ons. Because most people have several sets and won't throw out old ones that work, the industry has been forced to recognize that not all TV sets will be digital even in digital households and, moreover, that some of the remaining 8 percent of non-MVPD U.S. households will continue to depend on inexpensive down-conversion boxes for each TV set.

On the home recording front, the public's rapid adoption of digital music and DVD players killed off VCRs and videocassettes (except for the preschool children's market). About 86 percent of all households have DVD players. Although Blu-Ray won the DVD standards battle in home playback, victory came a bit late. Access to many of the same programs over the internet has slowed Blu-Ray's penetration, and creating libraries of DVDs is a practice that is likely to fade away. Consumers can load movies and TV shows at high speed on flash drives if they want portability, so the DVD becomes unnecessary. Meanwhile, Hollywood is rushing to play catch-up by digitizing its enormous libraries of old movies and television series to make them available online…once a bullet-proof digital rights management (DRM) system is fully in place.

4. High-Definition Television

Virtually all prime-time television programs and major sporting events on ABC, CBS, FOX, NBC and PBS appear in HD. Over 100 cable networks, including ESPN, CNN, TNT, A&E, USA, TLC, Comedy Central, several Discovery channels, the pay networks and most regional sports networks, as well as the largest television stations, offer much of their evening programming in HD.

Although more than 60 percent of homes have HD screens, nonetheless, three-quarters of viewing still occurs in standard definition for two main reasons. First, many consumers haven't hooked their sets up to HD signals—requiring a special HD set-top box from an MVPD for a monthly fee. Second, much TV viewing takes place on non-HD TV sets away from the main set, though such sets are slowly being replaced with HD-capable screens in homes. Moreover, older television reruns will continue to look like standard definition on any screen because of the way they were produced (the kind of cameras they were shot with).

DirecTV dishes and receivers can handle the standard compressed digital standard-definition signals (non-HD signals) and HDTV signals from satellites in both progressive format (scans like computers in 720p HD) and interlace format (scans like television

3.8 The Competing Scanning and Recording Systems

High-definition television (HDTV) contrasts with standard-definition television (SDTV) and lower-definition TV systems used in other countries. SDTV (480i) has 480 lines of resolution and uses interlace scanning. The HDTV system called 1080i has 1,080 lines of resolution and displays images using a form of interlaced scanning that first transmits all the odd lines on the TV screen and then the even lines. This system of HDTV is supported by CBS, NBC and the CW. The competing HDTV system, called 720p, offers 720 lines of resolution and displays images using progressive scanning, which means it transmits each line from top to bottom. This system provides image quality close to that of 1080i. Moreover, when transmitted at 24 frames per second instead of the usual 60 frames per second, cable operators can squeeze more HDTV channels into their channel lineups. This system is, not surprisingly, supported by cable operators, as well as by ABC and FOX. One additional option is 480p, with 480 lines of resolution scanned one after another progressively on the screen. It allows for transmission of either multiple programs in the space of one channel or data services such as internet access. It is, quite logically, supported by Microsoft and various computer companies who use progressive scanning, and 480p is considered to be enhanced-definition television (EDTV) not HDTV. Finally, the SDTV standard in the United States is not the same as the standard in Europe and other places, just to keep things interesting. So don't buy a DVD somewhere else and expect to play it at home in the States.

in 1080i ATSC). The differences between systems are described in 3.8. Indeed, a single satellite receiver can function simultaneously as a digital television receiver for over-the-air signals and for high definition of both kinds and provide seamless switching among all channels, accompanied by Dolby Digital surround sound.

Of course, 3D is also beginning to penetrate the marketplace, with and without glasses. 3D will be a big draw for sports bars and other public places now, but 3D works best on the small hand-held or game screen at present. Without glasses, the viewer must look squarely at the screen to get the 3D effect (as on a smart phone or home game machine). In crowded informal settings such as bars, glasses are a considerable annoyance. (It is possible that the jump to holography will occur before any kind of 3D gets widely adopted.) However, as with HD, a large enough quantity of 3D games, programs and movies will have to be produced and distributed before consumers will become interested in investing in expensive 3D television sets. Creating such content will take a considerable amount of time and financial investment by the content creation and distribution industry. Additionally, the current lack of a de facto technical standard for 3D TV is also a deterrent to marketplace penetration of 3D television sets.

5. On-Demand Television and Audio

In spite of the significant cost of doing so (cableops, satcos and telcos pay bigger rights fees for programs and movies stored in an on-demand library), cable operators have been rapidly rolling out various on-demand services because they have the potential for great profitability. Competing technologies exist, but Comcast's strong market power tends to set the standard for other cableops, as well as for telcos. In one system, content gets streamed in real-time though a set-top box or DVR; in another, content is downloaded to a computer, DVR or—for audio only—a portable media player. Internet television is a form of downloaded VOD, as is the format some airlines have adopted, called AVOD.

If the rights holders and distributors can agree on a mutually profitable fee structure, a complete shift to this form of interactive transmission by cable and telco operators is likely. In the decades ahead, many experts predict that very few *live* broadcasts will occur. Eventually, only a few networks will deliver real-time sports and breaking news; the rest of television will be

on-demand programming, operating much the same whether the consumer seeks entertainment or information, and looking the same to the consumer whether the original source was once called a broadcast, cable, satellite, telephone, wireless or online network and whether the programs are watched on television, computer, smart phone or tablet screens—or no screens at all.

To imagine the near future of television, consider radio and its shift to MP3s and then internet downloads. *Ultimately, on-demand services will mean the realization of a greatly expanded channel universe by combining the vast resources of the internet with most preproduced and recorded video and audio programs and, less happily, with a large supply of commercial messages targeted to individual consumers*. The speed of this huge change, which is now in progress, depends on several things. These include the deployment of smart set-top boxes (with complex software) and the spread of greater standardization among technologies via open or flexible architectures (infrastructures that can transform any kind of signal into something the viewer can see and hear whenever they want to view it and on whatever screen on which they want to view; see 3.10 about MPEG-21). At the other end, the speed of transformation also depends on consumer willingness (that is, desire) to purchase video "by the program" in their homes.

6. Standardizing Standards

To take advantage of complex information flows and to seamlessly mix signals coming from many sources—from computer data, broadcast television, cable television, telephone, banking signals, shopping credit records, fax and so on—requires common standards—from sophisticated switching centers down to the basics of jacks and plugs—across the entire communications industry. Widespread adoption of the MPEG-2 transmission and storage formats for video and audio and MPEG-4 (the chip language for digital video compression) have been steps on the way to industry-wide standardization that apply to broadcasting, cable, satellites, telephone and the internet. Their utilization allows program distributors—whether cable, satellite or broadcaster—to reconstitute programs and movies in viewable form on home equipment.

New and complex technical solutions are required to manage the delivery of these different content types in an integrated and harmonized way that has to be entirely transparent to the consumer of the multimedia services. Such solutions are coming but both technical and financial impediments slow the process.

Set-top converters, for example, have some downsides for subscribers. Most converters defeat the utility of the television's original remote control and interact poorly with purchased DVRs (such as TiVo), frustrating subscribers and generating complaints. Moreover, subscribers must pay monthly for *each* converter box, raising monthly bills in homes with many television sets. (The national average is three, and it is common to have as many as five or six TV sets and a mix of accompanying DVD players and DVR units.) Now that smart digital boxes have replaced analog boxes, cable programmers face difficult decisions about how to provide sophisticated capabilities without disrupting service to households with only elementary capability.

For a long time to come, there will be households (or secondary TV sets) that will need simple down-converters to take digital signals back to analog signals ($30 at the supermarket). DVRs incorporate hard drives and fancy computing functions, giving them replay, record, search and other capabilities, and they become increasingly sophisticated with each generation. *Cable operators are in a transition period, moving inexorably from limited addressability toward a totally addressable digital infrastructure* that should eventually eliminate one of DBS's current advantages over cable.

The newest intelligent boxes include a cable modem, advanced graphics, greater speed and a "triple-tuner" architecture that allow customers to simultaneously watch television, access blogs and vlogs on the internet, record several channels talk on the telephone and use their tablets to wirelessly interface with the set-top box. Rollout proceeds in fits and starts because of the increased capital investment required to deploy such smart boxes and

because of the continuing development of new set-top box capabilities. Instead, set-top converters evolve and mutate, gaining abilities until they reach the full-service, intelligent two-way platform.

Once standardization of the technology is achieved—at some date in the future—such million-circuit converters (and DVRs) will probably move inside television sets, but adoption of such advanced technology will require replacement of all home electronic equipment, and thus widespread adoption will be slow in arriving. In the meantime, incorporation of high-definition signals and connections to other digital services must be worked out among industry competitors, further slowing implementation of new services. All the user interface hurdles will delay implementation of these and many additional technological advances.

7. Interactivity

It was once thought that program guides, home shopping and games would push the cable industry toward implementation of secure interactivity (two-way communication between users and cableops). Instead, *advertising has been the driving force in meshing the internet with television in home living rooms.* Advertisers want minute-by-minute access to usage patterns, and most want consumers to have the ability to click to access additional information about products that interest them, the kind of thing easy to do on a computer. Coming first to cell phones and tablets, as broadband gets to more homes, spillover into programming will occur. All kinds of programs—from education to cooking to comedies—may eventually avail themselves of the ability to ask viewers to respond in real time.

Interactivity via the internet has already revolutionized information gathering about audiences and methods of calculating audience size, and its spread to television is altering both the revenues available to cable, satellite and telephone companies and program content. For example, with some advanced interactive setups, viewers can tune in to a live sporting event, then choose their own camera angles, select the most recent statistics or purchase their favorite players' jerseys—all by clicking a remote. Imagine watching a television show, then instantly ordering the soundtrack or a particular star's dress or sweatshirt, without even having to dig out a credit card. The charge for the item will simply appear on the monthly service bill. Viewers could also play along with a popular game show or do banking and pay bills without getting up from their living-room or office chairs—all by clicking a remote or, more likely, through use of their tablet. Although some of these functions can be done at present on a computer, all require more than merely clicking a button.

Some interactive options are already available from a number of cable and satellite operations: DISH in the United States; SKY Broadcasting in the United Kingdom; TPS and Cable Lyonnaise in France; PrimaCom in Germany; Via Digital in Spain; and Galaxy Latin America, the exclusive provider of DirecTV in Latin America. Such companies as Canoe Ventures, OpenTV, ICTV Inc. and Visible World have been working with MVPDs and programmers to expand viable business models for interactive television in the United States.

Legal Considerations

Selection strategies have a legal side, too, and we look at eight concerns here. Like all businesses, MVPDs must adhere to federal law, state law and municipal agreements, and several long-established policies promulgated by Congress, enforced by the FCC and upheld by the courts particularly affect programmers.

1. Universal Access

One congressional media policy is the goal of equality for rural and urban users. This goal has more than a century of tradition in government regulations encouraging and then demanding access to utility and telephone services for all citizens, and it drives many policy decisions regarding television and the internet. *Above all, communication technologies are viewed as essential to the proper operation of a democracy—for both their informational and their educational capacities.* Thus, *access* for all the

public, irrespective of household income or geographic location, is a policy goal.

For several decades, the main method of implementing this goal was a federal mandate requiring the delivery of terrestrial radio and television broadcast signals to all homes. Historically, Congress viewed cable and satellite services as secondary to broadcast service, though the courts tended to equalize their value. Since 1996, access for all to the internet has been a goal, but implementation lags behind policy, largely because imposing regulations on the internet early in its development was widely seen as inhibiting innovation and speedy growth. Although dial-up access is now widespread in rural areas, regulators' attention has shifted to ways of encouraging affordable availability of broadband and wireless services.

An important part of that access is to AT&T's and Verizon's data networks. Although existing voice roaming rules allow local competitors to connect to other networks for out-of-area telephone calls (voice), it took a 2011 FCC decision to force the big guys to permit access for data—meaning sending pictures, doing email, searching Google and watching online video. Smart media require large amounts of bandwidth to accommodate all the things consumers want to do, and their expectations are the same whether they live in urban or rural areas. Providing consumers who live in rural areas with "adequate" access to broadband will require governmental subsidization through the generation of universal access fees along with the payment of higher monthly fees by these customers.

2. Must Carry

One of the most contentious regulatory issues of the 1990s—carrying well into the twenty-first century—is the required carriage of signals. The issue of **must carry** divides the program providers (networks) from the distributors (local cable systems, telcos and DBS companies) and even more vociferously divides local broadcasters from other multichannel video distributors.

Initially, the must-carry question was whether cable operators should be required to carry all *local broadcast television* signals. Without a legal requirement forcing cable systems to carry all local broadcast stations, cable operators could have excluded some stations from easy access to cable viewers because the installation of cable connections usually means over-the-air antennas are disconnected. Cable operators could be expected to want to carry highly watched network affiliates of the major networks—but to have less desire to carry small-audience religious, foreign-language, educational, public and quasi-independent stations and shopping affiliates. Shopping channels, for example, compete for viewers with channels owned by the cable MSO or shopping channels with which the operator has a favorable financial arrangement. Any broadcaster excluded from cable systems would be greatly threatened financially because of decreased audience reach. Congress (eventually supported by the courts) decided cable "must carry all."

Next, the question shifted to whether *satellite* services, which wanted to carry the most highly valued local TV stations in each market, had to carry all *local broadcast* signals. Would DBS have to provide retransmission of all local stations (called **local-into-local service**), eating up considerable bandwidth and necessitating high scrambling costs because their footprints overlapped many markets? On the one hand, DBS providers had long sought the lifting of prohibitions *against* carrying *any* local terrestrial broadcast television stations; on the other hand, they said that being required to carry *all* local stations in order to carry *some* local stations, irrespective of content, would be difficult, very costly, and not in the public interest. Even with sufficient capacity, hypothetically satellite operators offering merely the affiliates of all nine broadcast networks plus a PBS station to all 210 markets would require the operators to catch more than 2,110 signals, scramble them, and then selectively unscramble 10 signals for each market.

It was decided that although DBS companies have the option of providing local-into-local service, they would not be required to do so. However, if they carry one local market TV station they are obligated to carry all the stations in that market. Today, DISH offers local into local service in all 210

Designated Market Areas (DMAs) and DirecTV's local-into-local service reaches more than 94 percent of U.S. television households. DBS subscribers typically pay a monthly fee to receive their local channels via DBS unless they purchase a program package that includes local channels as part of the cost of the package.

After the turn of the century, the contentious issue shifted to **digital must carry**. Although federal law required broadcast stations to shift from analog to digital signals, as long as a significant portion of the public could receive only analog signals, *broadcasters* had to (for economic as well as political reasons) distribute both kinds of signals. Most *cable* operators however, claimed that they lacked the channel capacity to provide two signals for every broadcast station (along with a wide range of both analog and digital cable networks) and that most households could only receive analog signals. At the same time, *broadcasters* argued that their enormous financial investment in digitization would be squandered unless local *cable* operators were required to carry both their analog and digital signals during the transition from analog to digital. The FCC declared that cable operators were required to carry *either* the analog *or* the digital signal, not both.

Once the conversion to all digital was accomplished, the battle shifted to **multicarriage**, or carriage of *multiple* digital (but non-HD) signals from one station as opposed to only carrying that station's high-definition signal. Congress's announced intention is to shift the country to high-definition television. Complicating the issue, the larger stations now argue that the most viable business model for many stations might be to divide a digital channel into a hybrid HD service (less than true hi-def) along with several other SDTV (standard-definition television) multicast program services, rather than fill it with only one channel of true HDTV. In essence, many broadcasters wanted to copy cable networks by becoming multichannel program suppliers and delivering multiple channels of programming (perhaps all news or local sports, all old movies or non-English programs—some hybrid HDTV and some not).

However, to date, *the FCC has ruled that a station is entitled to carriage of only one primary video programming stream under the current must-carry rules*. At the moment, carriage of secondary digital television programming depends on successful negotiations between local TV stations and MVPDs (cableops, telcos and satcos) through the retransmission consent process. At the same time, *Congress has made it very clear that it expects local TV stations to broadcast some form of HDTV, not just multiplexed SDTV*.

3. Net Neutrality

Then the whole topic of *must carry* rotated sideways to become a concern about the internet carrying (or not carrying) all content in the pipeline without favoritism or overage fees. Dubbed **net neutrality**, the fear is that internet service providers (cable companies especially) might install equipment that blocks competitors' programming, or even more likely, inhibit high-bandwidth usage by creating tiering systems or instituting overage charges. *The question to be decided is whether carriers should be prohibited from exercising data discrimination.* Some online games, for example, require huge amounts of bandwidth.

Another high-bandwidth usage group of services is **peer-to-peer communications** (**P2P**). Although it originally referred to file sharing systems such as BitTorrent and Napster, the concept has been broadened to social communication among peers as in YouTube, Facebook, and social games. P2P ties up large amounts of bandwidth with services that typically don't make money for the carrier (or its parent corporation). In addition to concerns with usage based data discrimination, public interest advocates are concerned that broadband providers (cableops and telcos primarily) might favor their own content and applications (or of third parties who pay for priority) over other content and applications. Cable companies, for example, might rather consumers consumed its cable television networks than played elaborate games such as Farmville or chatted on Facebook.

The FCC established Net Neutrality Rules in late 2010. These rules: (1) require all broadband providers to publicly disclose their network

management practices (transparency), (2) restrict broadband providers from blocking internet content and applications (no blocking), and (3) bar fixed (not mobile) broadband providers from engaging in unreasonable discrimination in transmitting lawful network traffic-including favoring their own content/applications or that of third parties who pay for priority over other content/applications (no unreasonable discrimination). No one is very happy.

4. Retransmission Consent

In 1992 Congress allowed local television stations to choose between being carried free of charge by cable systems or negotiating with the operators for some compensation for carrying their signals (*retransmission consent*). After some years in the courts, the law was upheld, and stations have the choice of opting for inclusion under the must-carry rules or giving permission for carriage, with the majority of stations picking the latter. In order to deliver local-into-local service, the Satellite Home Viewer Improvement Act of 1999 also required DBS companies to seek retransmission consent agreements with those television stations that chose this option over must carry, thus essentially treating all multichannel distributors alike, including telephone companies.

When the rules first went into effect, most cable MSOs refused to pay direct cash for any broadcast signal. Consequently, the broadcast networks (and other major group broadcasters) initially exchanged their owned-and-operated stations' retransmission rights for cable carriage of cable channels owned by their parent corporations, such as FX, MSNBC, Food Network and ESPN2. This worked for a while. By the turn of the century, however, Disney and FOX (along with others) were aggressively seeking leverage against such major cable operators as Cox and Time Warner. Their tactics included requesting more favorable channel placement (lower or "good" digital numbers—the easy-to-remember ones) on systems for all Disney or FOX-owned cable networks; asking MVPDs to pay relatively high monthly per-subscriber fees for carrying new cable networks owned by Disney or FOX; entering into an ad barter arrangements with cableops to get them to "pay" indirectly for carriage of their local stations; and licensing some local news to cableops for local video-on-demand. *By contrast to the cableops, DISH, Verizon and AT&T decided in 2007 to pay direct cash for the rights to retransmit local TV stations, which rang loud warning bells of change in the industry.*

With the rise of strong competition in the MVPD marketplace among cableops, satcos and telcos, "must have" local television stations (ABC, CBS, NBC and FOX network affiliates) now have the leverage to negotiate direct cash payments from cableops (and other MVPDs) for carriage of their signals. In fact, **retransmission consent fees** are the fastest revenue growth area for big four network-affiliated television stations accounting for 12 percent or more of a many station's cash flow. Recently, some spectacular battles over retransmission consent between content owners and redistributors have flared. ABC, for example, cut its signal to Cablevision systems the day of the Academy Awards, which led to a settlement just as the Oscars aired; and Time Warner Cable and FOX settled a heated retransmission consent dispute the day before the Sugar Bowl.

Then **tablets** become the hot issue—and by extension other mobile media like smart phones. Viacom (owner of MTV and Comedy Central) and Scripps (owner of HGTV and the Food Network), supported by other content owners, demanded that *distributors* (Time Warner Cable and Cablevision) *pay a premium for streaming television channels to new media like iPads.* The cable operators in turn insisted that the right to distribute to other media was already covered by previous retransmission contracts for cable carriage.

There are *two* main concerns here: One is *who supplies the app for content channels*: Will consumers use apps arranged by their cableops, apps provided by content channels, or downloads through paid services like Netflix? Or all of the above? Having iTunes, for example, provide the app has advantages because it can log fees to an existing account, and its apps can be made to work only within the consumer's home, not as a mobile service (without extra fees). Every company in the middle of the

3.9 Mobile Wallets

Cell phones with embedded chips are set to replace credit cards and bank cards: A simple swipe, and a bill is charged or money falls from the ATM. But the same battle for pieces of fees charged for tablet apps is being fought over the cell phone among somewhat different players. The banks and big payment networks (Visa, MasterCard) want to continue to collect fees from merchants; Google and PayPal want a new system that gives them cuts as servicers like banks; and Apple and mobile carriers want to collect fees for every use of their phones. Consumer protection groups fear that any new system will cost consumers more, in part because fancy new equipment would have to be installed everywhere. Nonetheless, after a decade of debate, agreement is slowing inching forward. Isis, a joint venture by AT&T, Verizon and Discover, is experimenting with a system of mobile payment, as is Barclaycard in Britain and the United States.

3.10 MPEG-21 and the Future

One hopeful sign is the current tentative agreement on MPEG-21, a comprehensive new technical standard for multimedia on the near horizon. It speaks to the processes of exchanging, accessing and manipulating video and audio across all media—from the internet to broadcasting to wired and wireless transmissions of all kinds. It potentially divides the monetary pie for the participants in any exchange, and one of its great appeals is that it can readily exclude unpaid file sharing. Because different parties have intellectual property rights associated with multimedia content and understandably seek to acquire income from those who make use of their content, MPEG-21's appeal is that it integrates two critical technologies: one that allows consumers to search for and obtain content—either personally or through the use of intelligent agents—and another that presents content for consumption that preserves the usage rights (through payment of royalties) associated with the content. However, MPEG-21 is more a hope than a reality at present.

distribution process wants some revenue from the stream, and iTunes and Netflix naturally want healthy cuts (see 3.9).

The second main concern is *how to count audiences*. The more television viewed by consumers on iPads and other tablets, the greater the importance of counting every viewing of every program in order to sell advertising effectively. Chapter 5 outlines the measurement problems. How this will all work out and what it will cost consumers are unknowns (see 3.10).

5. Corporate Policies

In addition to legal carriage requirements enforced by the FCC, the policies of the parent corporation may impose restrictions on what a local system can and cannot carry. Some MVPDs, for example, have policies against carriage of adult programming. Moreover, parent cableops often sign agreements with program suppliers that have the net effect of compelling carriage of a particular cable network on all their systems irrespective of whether it might be the best choice for each market. A cable network naturally wants the largest possible audience and can offer discounts to a cableop to encourage wide carriage. Channels with a lot of violence and sexual material have been the biggest problems. With giant cable operators having thousands of local systems scattered across the country, standardized channel selection is unlikely to be an ideal fit for every location but it is economical for the MVPD.

6. Franchises

Historically, every cable system has had to win a *franchise* (a contract) from a local municipal government in order to operate in the local geographic area. Once cable operators receive a franchise, most are required to pay a percentage of their revenues into local government coffers. This is called the *franchise fee*, and cable subscribers see it listed on their monthly bills. Local government justifies charging operators a fee because they are making commercial use of local infrastructure (streets, trees, public rights of way) that belong to the whole community. Cable operators then list the franchise fee on the bill (typically about 5 percent of the subscriber's monthly statement) to inform cable subscribers about this so-called tax.

In addition, local franchise agreements often specify that cable operators must provide a specific number of *public, educational and government (PEG) access channels*. DBS companies also have public interest obligations amounting to 4 percent of their channel capacity. DirecTV, for example, carries C-SPAN, NASA TV, Link TV and others. The advent of Verizon's and AT&T's entrance into the multichannel television business led many states to replace local franchising with state franchising requirements for telcos in order to speed up their competitive entry into the multichannel video distribution business.

Periodic refranchising of local cable operators used to be a hurdle for each cable operator and local government every 10 years or so. Since 1992, local communities have been forbidden to grant exclusive or monopoly franchises, so telcos cannot be excluded. At the same time, local communities must legally prove that an incumbent franchisee has provided *inadequate service*—a difficult thing to demonstrate to a court's satisfaction—in order to refuse to renew an existing cable provider's franchise. When coupled with the ever-changing multichannel competitive landscape, cable operators appear to have a strong renewal expectancy with respect to refranchising, which, in theory, makes it more difficult for local authorities to negotiate for improvements. In sum, *federal regulations have generally freed MVPDs to program as they wish, with the exception of the must-carry and retransmission consent rules*. But a couple more sets of rules are relevant in some situations.

7. Syndicated Exclusivity

Another area of federal concern has to do with exclusive rights to show syndicated programs. Federal regulations now enforce the *syndicated exclusivity rule* (often called *syndex*), which requires cable operators (and now satellite and telephone program carriers too) to black out syndicated programs on *imported* signals (distant stations or satellite-delivered cable networks) in an area when any local station possesses exclusive rights to the syndicated program. For example, if both WGN, the Chicago superstation, and a local station in Indianapolis (or Kansas City, Fresno, Atlanta or wherever) happen to carry rerun episodes of *Frasier,* and IF the local station has stipulated exclusivity in its contract with the syndicator (usually for a stiff price), the superstation must be blacked out or covered up with another show in the franchise area when *Frasier* is on the local station.

Most importantly, the syndex rule also applies to sporting events carried by satellite. Because most local cable systems lack the insertion equipment to cover up one program with another, such superstations as KTLA, WPIX and WGN have tried to make themselves as "syndex proof" as possible by scheduling only original programming or paying for exclusive national rights to syndicated shows as WGN did with *American Idol Rewind* and *24*. Another example is TBS's having exclusive national rights to *The Andy Griffith Show* for many years but losing them to Viacom's TV Land when its term of license ended in the mid-1990s. DBS and telcos are also required to provide syndicated exclusivity to local TV stations. But the most valued syndicated programs are sporting events because they involve live original programming, huge audiences and big advertising revenue; in consequence, the cost for exclusive national cable or satellite rights for sports programs is usually very high.

8. Antennas

Another bone of contention has to do with regulations about antennas. The FCC's Over-the-Air Reception

Devices Rule removes the ability of local governments, property owners and covenant-controlled communities to restrict individual home-owners' ability to install outside antennas (dish or aerial) in order to receive video programming signals from television stations, wireless cable providers and satellite/telephone systems. The rule prohibits most restrictions that (a) unreasonably delay or prevent installation, (b) unreasonably increase the cost of installation, or (c) preclude reception of a signal of acceptable quality. The rule applies to subscribers who place video antennas on property they own, including condominiums and cooperatives that have an area for the subscriber's exclusive use (such as a balcony or patio) in which to install the antenna. The rule also applies to townhomes and manufactured homes, as well as to single-family homes, and in essence greatly increases the number of potential customers for wireless cable and DBS service.

Economic Considerations

By the second decade of the century, just over eleven hundred (1,162) separate cable companies operated in the United States, down slightly from a decade ago (1,191 in 2000). To reduce operating costs and increase operating efficiencies, cable companies bought, merged or swapped systems to create large *clusters* of geographically adjacent or nearby cable systems. Operating all (or most) of the systems in a local area under a single manager saves significantly in overhead and marketing costs. It has also allowed the cable industry to achieve the size required to generate the billions of dollars of cash flow required to upgrade the cable system plant in order to offer broadband, telephone service and video on demand services. *Clustering* is clearly more efficient than operating a patchwork of scattered systems in different counties and different states. Studies also show that above the 5-million-subscriber mark, significant economies of scale emerge. Because most U.S. homes can subscribe to cable if they want to, but only about half do, growth for cable companies can be achieved in only two ways: sell more varied domestic services (high speed internet service, telephone service, etc.) to existing subscribers and do a better job of acquisition marketing (taking subscribers away from satcos and telcos and getting non-MVPD subscribers to subscribe). Nearly every aspect of the cable and satellite business involves cost expenditure as well as potential income. In deciding whether to carry a new channel, operators have to calculate whether the benefits (revenues) will outweigh the expenses. On the benefit side, revenues come mostly from monthly subscriber fees and advertising time purchases; on the outgo side, expenses include the cost of carrying and installing the program services, paying for copyrights, and paying for churn. *Understanding the basic economics of MVPD program delivery involves knowing who pays whom.*

In general, MVPDs pay to carry content. Most established cable networks require each local cable, satellite, or telephone operator to pay a monthly fee for each program service supplied, *calculated as a dollar amount per subscriber per month,* and ranging from a few cents per sub to more than $6 per sub for ESPN. A number of the more than 600 cable networks come without charge to redistributors (especially highly specialized services), and a very few actually pay the MVPDs for carriage (mostly retail or brand-new services offering short-term arrangements). In the past, Univision paid some cable operators a small amount per Spanish-surname subscriber (rates varied with the quarter of the year), but its great popularity ended the need for such payments. FOX paid cable operators for one year to add Fox Sports to their systems. Cableops now pay Univision and FOX a per-subscriber-per-month fee to distribute these networks to their subscribers.

Shopping services are a notable exception; they usually pay local cable operators a small percentage of sales as a carriage incentive and may operate as a barter network on an exchange-for-time basis, similar to the barter programs discussed in Chapter 6. A distributor such as Home Shopping Network presells most advertising spots, although a few local availabilities (*avails*) may be included as an enticement for the cable service to carry the channel. Nonetheless, most MVPDs pay out hundreds of thousands of dollars each month for the cable networks they carry.

Premium movie networks (HBO, Showtime, Starz, Cinemax and others) have a different licensing

pattern: The local MVPD gets between 40 and 50 percent of the monthly fee paid by subscribers, and the remainder goes to the program network. This fee-splitting arrangement explains why MVPDs offer so many premium channels and are so anxious for their subscribers to upgrade.

One successful method of gaining shelf space for a new program service is to offer equity holdings (partnership) to MVPDs. Systems are more motivated to place an owned service advantageously on the system because they benefit from its success.

On-demand services threaten to change the game. If, eventually, all or most existing programs are constantly available, then what selection strategy can a corporation or a channel adopt? One part of current strategy is certainly for content producers to hang onto specific program rights as long as possible to force viewers to seek the most desirable shows via just one channel. Or alternatively, in the future, a corporation might create a large shared pool of VOD programs accessible from any co-owned channel—convenient for audiences but making measurement of individual program audiences very difficult. If all older programs are available constantly, then the strategy for selection clearly devolves on choosing new programs to produce, and airing them repeatedly to capture maximal viewership before releasing them into any VOD pool. At present, *program rights for streaming videos* (what VOD uses) are negotiated along with the right to air an entire channel of series or movies on an MVPD.

Still another expense comes from the rising cost of utility pole attachments. Utility pole attachment rates are regulated by the FCC for both cable and telecom services (including wired and wireless services), which pay a pole rental fee of $7 per foot per year. Cities and utilities that own the telephone poles that both cable and telecos attach to are hungry for revenue and thus are raising the rates for such attachments. This is one more pressure toward wirelessness.

1. Revenues

In general, MVPDs have two revenue streams: subscriptions and advertising. Cable ops and telcos make money by selling both subscriptions and national and local advertising, whereas satellite television companies have subscription revenues plus only national advertising.

Subscribing The number of *new* subscribers in the United States to MVPDs has been slowly increasing for more than a decade. Consumers who want to sign up for cable or a competitor can do so as virtually all homes are "passed" by the wires or a satellite signal. Thus, the focus of the big MVPDs has been on upgrading current subs to higher levels of service. Fees for minimum service on cable have been kept low by federal mandate (that is, rates have been regulated), and basic service (the minimum level) usually includes only the local broadcast stations and local-access channels. But few people settle for just basic television service; they want broadband internet and more digital channels. So customer bills rise rapidly, keeping MVPDs profitable.

Typically, beyond the local stations' signals, additional channels are divided into tiers of programming, such as an expanded basic or "classic" tier, other digital service tiers including foreign language tiers, multiple premium movie and sports tiers, and several HD tiers and maybe 3D tiers. Acquiring HD in the home requires subscribers to rent one HD set-top box per television set, and it requires a subscriber to pay a monthly fee for HD service. Currently, major cable operators average $50 to $60 in monthly revenue from each subscribing household, and a customer's bill may easily exceed $150. MVPDs usually bundle television content with phone and internet services in "deals" with varying time limits so comparing across companies becomes tricky.

Altogether, cable holds flat at about two-thirds of multichannel households, and DBS serves almost one-third, and telco just less than a tenth. But MVPDs that provide superfast internet service are less concerned about cord-cutters than DBS because most cord cutters will be their internet subscribers anyway, and because content services on the internet are fast becoming pay services. As a result, cablecos and telcos will get their dollar share either way.

New enhanced services linked to the web are expected to be the "killer applications" of the next decade. Just as Google offers overlay of maps with other displays, so Autonomy and its competitors offer video insertion over real-life scenes. The first "wower" was a demonstration of moving images in

a newspaper as one turns pages (as seen in Harry Potter movies!). Soon, a cell phone passed across store windows in a mall will overlay images of special sales or other information for prospective shoppers.

Advertising On the positive side for cable operators, high programming costs can be offset in the case of the most popular cable networks because the local operator can sell up to two minutes of spot time per hour (*local avails*) on the most popular channels. (This advertising is in addition to the national advertising the cable content network sells.) Local advertising became a more viable source of revenue as an outcome of increased clustering of cable systems. In addition, cable systems owned by different companies can join to create large virtual geographic regions for the distribution of advertising messages. As with broadcasting, there is greater interest in purchasing ads on the most highly-rated (USA, TNT, Discovery) and tightly targeted (ESPN, MTV) cable networks. In contrast, satellite operators presently lack the ability to sell local advertising, but as spot beaming capabilities and other required technologies improve, the potential for DBS carriage of regional advertising increases.

Offering spots for local sale is a major bargaining point for cable content networks when renegotiating carriage contracts with local cable systems. For the most part, these spots are deducted from program time rather than network advertising time, so they cost the content network little. There is, of course, a practical limit to how much a program can be shortened to allow for advertising. Moreover, advertising spots that cannot be sold (such as spots in less popular programs or in lightly viewed time periods) offer little advantage to a local cable system.

2. Expenses

Carriage Fees Cost is directly affected by whether the cable content network is advertiser-supported (most cable networks) or subscriber-supported (premium channels), whether the MVPD owns at least part of the network, and which additional incentives the network offers the operator. The cable industry has consolidated very rapidly, partly because getting larger gives definite advantages in negotiation for lower per-subscriber prices for program networks. If an MVPD controls a subscriber base of 10 million or more homes—whether terrestrial or satellite—it has considerable leverage with program suppliers in negotiating monthly fees. As the largest operator of all, Comcast has enormous clout.

Estimates are that MVPDs collectively spend more than $35 billion on programming license fees each year, with approximately 75 percent of these payments going to advertising-supported cable networks. The fees per cable network vary from nothing to as little as a nickel per subscriber per month to about $6 per subscriber per month (see 8.11). ESPN, the most popular and most profitable of all channels, costs an average of nearly $6 per subscriber per month and requires operators to also carry ESPN2, ESPN Classic and ESPNEWS. For MVPDs, ESPN is an absolute must-have. In contrast, such smaller audience services as truTV (formerly called Court TV) charge in the neighborhood of $.35 per sub per month (which is still $35,000 a month in a midsized market with 100,000 subs). The fees paid to cable networks become a sizable monthly outlay for a system that carries 50 or more advertiser-supported networks to 10,000 or 20,000 subscribers, as the following equation shows:

$$\$.10 \times 50 \text{ services} \times 10{,}000 \text{ subs} = \$50{,}000$$

Thus $50,000 is the whopping monthly cost for just 50 networks in a tiny franchise area.

Just imagine what Comcast must pay each month for 300 content channels for 24 million subs! Even AT&T's U-verse has over 100 channels to pay for, times its subscriber list of almost 3.5 million. Moreover, network/distributor contracts sometimes specify even larger per-subscriber fees if the network is placed on an upper tier—under the assumption that fewer people will subscribe to an upper tier or package of channels. Inclusion on both regular digital and HD tiers is advantageous to content networks (and broadcast stations), so normally, MVPDs don't pay any extra fees for duplicating the same content. The fees are for *any* carriage at all (see 3.11). Such overhead costs underlie the battle over retransmission rights that is currently being fought between the owners of over-the-air television stations and MVPDs.

Compulsory Copyright In addition to network fees, all cable and satellite systems pay *copyright royalty fees* to the Licensing Division of the U.S.